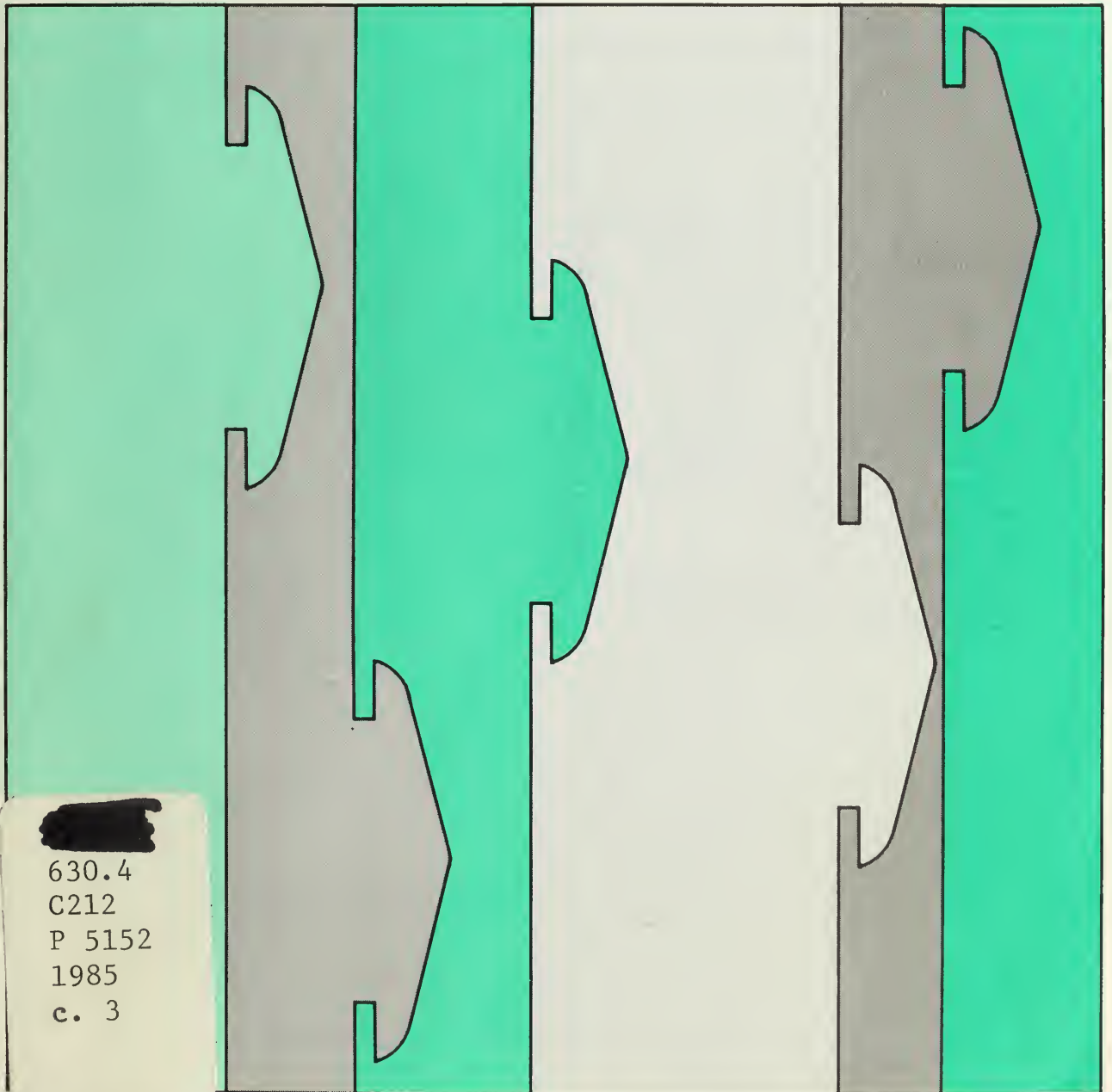


# Canada's agri-food system

## An overview



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# Canada's agri-food system

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## FOREWORD

This publication gives a brief but comprehensive overview of Canada's agri-food system in the 1980s. It describes the various parts of the system, how they relate to other sectors in the economy and indicates many developments taking place in the system. My sincere hope is that the publication helps the public acquire a better understanding and appreciation of a sector that touches the lives of all Canadians.

Members of Agriculture Canada's Regional Development and Marketing and Economics Branches prepared the material for this publication. They are indebted to Statistics Canada and other agencies for supplying many of the statistics.

A handwritten signature in black ink, reading "John Wise". The signature is fluid and cursive, with the first name "John" and last name "Wise" clearly distinguishable.

John Wise  
Minister of Agriculture



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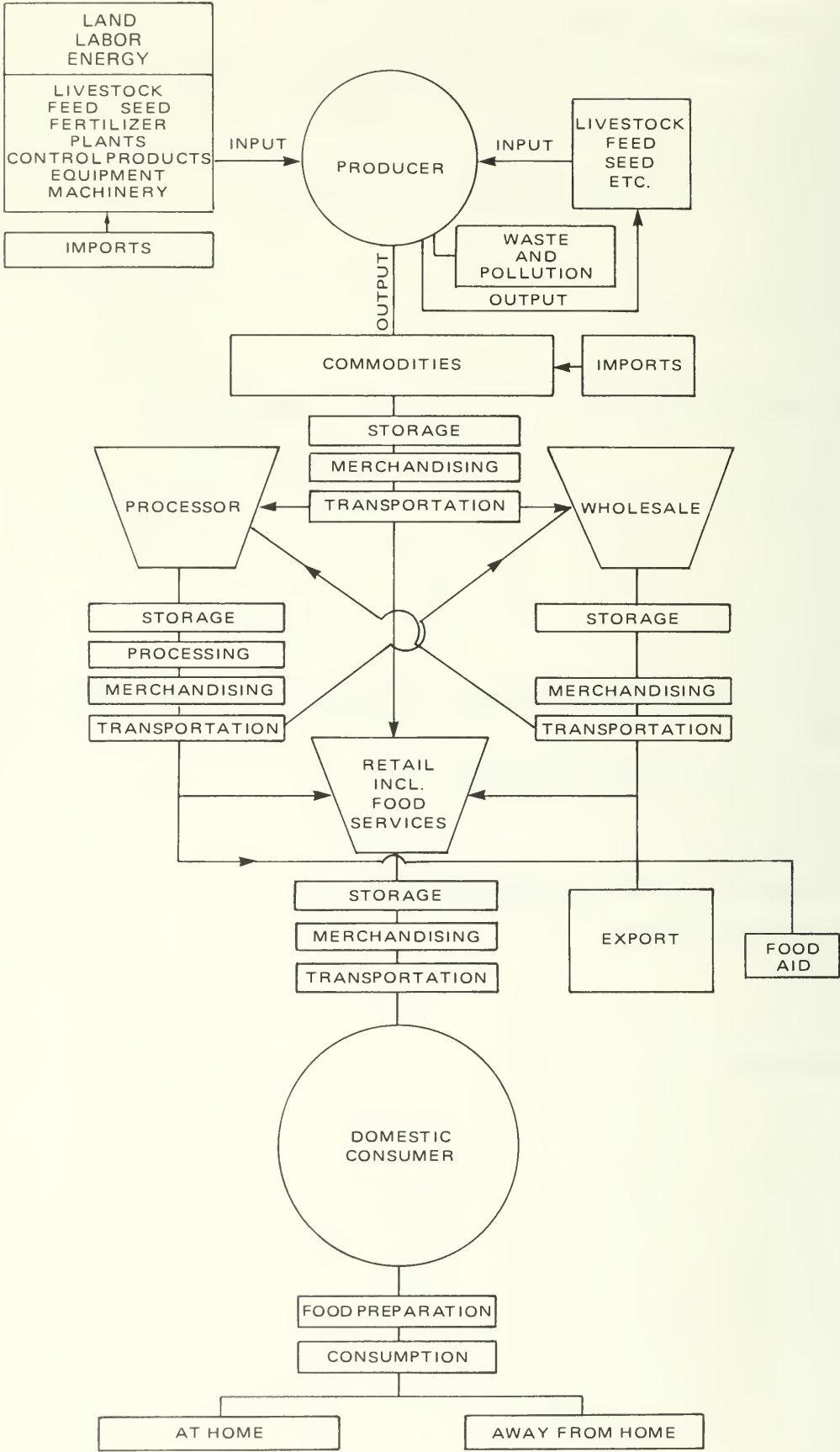
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# The Canadian agri-food system





## THE CANADIAN AGRI-FOOD SYSTEM

Canadian farmers produce a wide range of products such as wheat, barley, oilseeds, fruits, vegetables, beef, hogs, poultry and milk. Some of these go directly to consumers, but most enter a highly complex processing and distribution system. They then pass by various routes, as shown on the chart, to domestic or export markets.

Farm input supply industries are an important part of the food system. They provide inputs such as fuel, machinery, fertilizer and feed. Some are produced on farms, where they are used directly to produce other commodities; for example, corn and barley are used in the production of cattle and hogs and some crops are set aside for use as seed. Credit is also a major input in farm operations.

Beyond the farm gate, transportation, storage, processing, wholesaling and retailing industries add value to domestic and imported commodities as these pass through the system on the way to market. The food service industry, which includes restaurants and other institutions preparing food for consumption, is also an important part of the system.

Governments, both federal and provincial, are involved with the agri-food system through such activities as inspection and regulation of food quality and safety, research in crops and livestock, market development, development of agriculture in each region, income stabilization, land use and conservation, and the provision of production and marketing information to farmers.

Consumers spend more than \$40 billion on food a year, about one-quarter of it on food eaten away from home. Food, beverage and tobacco expenditures account for 18% of personal disposable income. Except for the United States and the Netherlands, this is a lower percentage than in any other country of the world.

International markets provide an important source of demand for Canadian farm products and agricultural trade is a major contributor to Canada's merchandise trade surplus.

The importance of the agri-food system can be measured by its contribution to the total value of goods and services produced in the economy. Farm production, food and beverage processing and the distribution of agricultural, food and beverage products contribute about 9-10% to total production. If input supply industries, service industries and governments are added, the agri-food system would contribute about 12-14%.

# CANADA'S FARM RESOURCE BASE

## Land area

The land area in Canadian farms decreased from 68 to 66 million hectares from 1976 to 1981 (Table 1). This is part of a long-term trend in which a gradual increase in improved land was more than offset by decreases in unimproved land.

The most productive land grows crops and summerfallow. The remainder of the farm area is used for pasture, hay, forestry and other purposes.

The combined area of crops and summerfallow is fairly stable from year to year, but it has been increasing slowly as land is improved and brought under cultivation. In 1981, the area was 41 million hectares. As market and climatic conditions change, however, summerfallow shows considerable year-to-year variability.

The type of crops vary across the regions of Canada. Most of our wheat, oats, barley, rye, flaxseed, canola, mustard and sunflowers are grown in the prairies. Soybeans, tobacco and beans are grown mostly in Ontario, fodder corn and grain corn in Ontario and Quebec, and potatoes in the Maritime Provinces, Ontario and Quebec. Fruit is grown in fairly specific areas. British Columbia's Okanagan Valley, Ontario's Niagara Peninsula, and Nova Scotia's Annapolis Valley are three of the most important.

Land is also used, directly and indirectly, in livestock and poultry production. Wild and tame pasture and hayland underlie the production of cattle, sheep and horses, but some cropland is required to produce grains for supplementary feeding. In hog and poultry production, the main requirement is cropland to produce feed grains.

**Table 1 Total Area in Farms, Canada, 1976 and 1981**

Kind of land	1976 ( '000 ha)	1981 ( '000 ha)
Total area of farms	68 427	65 889
Improved	44 227	46 122
– crops	28 344	30 966
– summerfallow	10 920	9 702
– crops and summerfallow, total	39 264	40 668
– pasture	4 064	4 405
– other improved	899	1 049
Unimproved	24 200	19 768
– woodland	4 367	3 551
– native pasture, hayland, other unimproved	19 833	16 217

**Table 2 Area in Crops, Canada, 1981**

Crops	('000 ha)
Wheat	12 452
Oats for grain	1 542
Barley for grain	5 457
Mixed grains	541
Corn for grain	1 142
Rye for grain	443
Buckwheat	67
Flaxseed	479
Soybeans	283
Sunflowers	118
Rapeseed	1 405
Mustard seed	88
Corn for silage	397
Tame hay	5 115
Oats for fodder	483
Other fodder crops	250
Potatoes	110
Tobacco	54
Sugar beets for sugar	30
Dry field peas	63
Dry field beans	79
Vegetables	117
Tree fruits	47
Small fruits	31
Nursery products	11
Not specified	162
<b>TOTAL CROPS</b>	<b>30 966</b>

**Table 3 Livestock and Poultry on Farms, Canada, 1981**

	('000)
Cattle	13 502
– dairy cows	1 772
– beef cows	3 517
– heifers	2 278
– steers	1 768
– bulls	268
– calves	3 898
Pigs	9 875
Sheep	817
Horses and ponies	358
Hens and chickens	92 718
Turkeys	8 705
Geese	486
Ducks	724

## **Farm population and farm numbers**

The farm is both a place of business and a home for most Canadian farm families. The population living on farms (Table 4) supplies most of the labor and management, paid and unpaid, used in commercial production. This includes the farm operator, the family and the hired workers.

In 1981, Canada's farm population formed about 4.4% of the total population. This varies considerably by province, depending on the importance of the province's farm sector relative to its total economy. Employment in Canadian agriculture was 485 000 in 1981 — 4.4% of the economy's total employment.

In 1981, there were 318 000 farms in Canada, a decrease of 20 000 since 1976 (Table 5). The decline is part of a long-term trend. It reflects developments such as mechanization of farm work, improved management skills of operators and increasing employment opportunities in non-farm occupations.

Farms vary greatly in size. By census definition, they can be so small that they make only \$250 in sales each year, or they can have extensive land areas, large investments in machinery and equipment, use advanced technologies, and have sales in the tens of thousands of dollars. Those with sales of \$50 000 and over account for about 75% of total farm production, but are owned by only about 25% of all producers.

**Table 4 Farm and Total Population, Canada, by Province, 1981**

Province	Population		Farm as percent of total population
	Farm	Total	
Newfoundland	2 494	567 681	0.4
Prince Edward Island	12 160	122 506	9.9
Nova Scotia	18 116	847 442	2.1
New Brunswick	15 436	696 403	2.2
Quebec	195 152	6 438 403	3.0
Ontario	288 743	8 625 107	3.3
Manitoba	98 375	1 026 241	9.6
Saskatchewan	187 163	968 313	19.3
Alberta	195 284	2 237 724	8.7
British Columbia	68 714	2 744 467	2.5
CANADA	1 081 637	24 343 181*	4.4

\*Includes Yukon and Northwest Territories

**Table 5 Number of Farms, Canada, by Province, 1976 and 1981**

Province	1976	1981
Newfoundland	878	679
Prince Edward Island	3 677	3 154
Nova Scotia	5 434	5 045
New Brunswick	4 551	4 063
Quebec	51 587	48 144
Ontario	88 801	82 448
Manitoba	32 104	29 442
Saskatchewan	70 958	67 318
Alberta	61 130	58 056
British Columbia	19 432	20 012
CANADA	338 578*	318 361

\*Includes Yukon and Northwest Territories



## Value of farm capital

Between 1976 and 1981 the value of capital on farms increased more than twofold to \$130 billion (Table 6), an average of \$410 000 per farm. This was due to higher prices, a smaller but significant increase in the quantity of assets held, and some increase in asset quality.

The value of land and buildings increased from \$44 to \$103 billion, mainly because of inflation of land values. The higher value of livestock and poultry was also due to increased prices.

The higher value of machinery was caused mainly by increased prices, but there was also a major increase in the number of machines on farms and their size and sophistication, reflecting the continuing advance of farm mechanization.

When the effects of inflation are removed, the value of farm assets as a result of increased physical quantities and qualitative changes increased about 21% between 1976 and 1981.

**Table 6 Value of Farm Capital, Canada, 1976 and 1981**

Farm capital	1976 (\$ bil.)	1981 (\$ bil.)	Dollars per farm 1981
Land and buildings	43.6	103.3	325 000
Machinery and equipment	9.0	17.4	55 000
Livestock and poultry	4.5	9.7	30 000
TOTAL	57.1	130.4	410 000

## AGRICULTURAL INPUT AND SERVICES INDUSTRIES

### Farm expenses

Table 7 shows the relative importance of various purchased inputs in relation to total operating expenses for 1983.

Those that made up a large part of total expenses in the 1970s — energy and energy-related inputs, feed, credit, machinery repairs and wages for hired labor — were still important in 1983 and comprised about 75% of all farm expenses.

Expenditures on credit charges, fertilizer, pesticides and electricity continued to increase in the 1976-83 period. The growth in credit charges was due to higher interest rates and the rising value of land and machinery, while rising fertilizer, pesticide and electricity expenses reflected both increased prices and greater use.

Fuel expenditures in the 1976-83 period rose sharply because of a major increase in prices and a small one in the quantity of fuel used. The wage bill increased due to higher wage rates and more hired workers on farms, while feed costs rose as a result of higher prices and greater use. Expenditures on farm machinery repairs rose mainly due to increased prices.

**Table 7 Expenses for Purchased Inputs, Canada,  
by Major Item, 1983**

Item	Expenses (\$ mil.)	Percent of total
Energy, total	3 291	25.9
– fuel oil and heating fuel	1 467	11.5
– fertilizer	1 012	8.0
– pesticides	544	4.3
– electricity	268	2.1
Feed	2 009	15.8
Credit charges	1 875	14.8
Machinery repairs	1 113	8.8
Wages	1 227	9.7
Farm rent	661	5.2
Feeder cattle and weanling pigs	389	3.1
Property taxes	276	2.2
Remaining expenses	1 856	14.6
<b>TOTAL</b>	<b>12 697</b>	<b>100.0</b>

## Farm finance

Higher operating expenses and the rising value of farm capital have substantially increased the use of credit by farmers over the last decade. Total farm debt and annual borrowings increased about fourfold during the 1971-83 period. Farmers borrow from a variety of sources such as the Farm Credit Corporation, provincial government agencies, banks, credit unions, supply companies, cooperatives and private individuals. In recent years, long-term loans have increased most rapidly as rising prices and higher interest rates have necessitated longer repayment periods.

Credit surveys by the Farm Credit Corporation in 1981 and 1984 indicate a decline in asset values while liabilities continued to increase (Table 8). As a result, net worth declined by 4.3% (from \$99.9 to \$95.6 billion). The decrease in asset values was primarily due to a drop in farmland prices, the result of lower farm incomes and high interest rates during the 1981-84 period.

**Table 8 Canadian Agriculture Balance Sheet, 1981 and 1984**

	1981 (\$ mil.)	1984 (\$ mil.)
<i>Assets</i>		
Total short-term	14 552	13 881
Total intermediate	26 749	29 710
Total long-term	76 195	72 722
Total assets	117 496	116 313
<i>Liabilities</i>		
Total current	2 902	3 425
Total intermediate	4 052	4 501
Total long-term	10 687	12 802
Total liabilities	17 641	20 728
Net worth (assets less liabilities)	99 855	95 585
Equity (net worth as % of total assets)	85	82



## Farm machinery

The farm machinery industry provides Canadian farmers with a wide range of implements and equipment, from tractors to milking machines and from harrows to combines. Many of these machines are specifically designed for Canadian conditions. The extensive farm machinery retail, wholesale and distribution network sold machinery with a wholesale value of \$1.9 billion in 1982 (Table 9).

There are close to 200 Canadian farm machinery manufacturers competing in an international market. As these produce 60-70% of the value of domestic farm machinery sales and imports and exports are extensive, Canadian prices and market conditions reflect the situation in the world market.

The trend towards mechanization contributed greatly to the increase in productivity in Canadian agriculture. Between 1976 and 1982, the capital value of machinery on farms rose at an annual rate of about 2% in real terms. From 1980-84, farmers bought about \$2 billion of new equipment each year. Consequently, they have a relatively new and technologically advanced stock of machinery. At the same time, employment in farming has declined slightly, as machines have been substituted for labor.

**Table 9 Principal Statistics, Farm Machinery Industry, Canada, 1976 and 1982**

	1976	1982
1. Retail sales of farm machinery and repair parts:		
– current dollars (mil.)	1 289	1 896
– 1981 dollars (mil.)	2 181	1 790
2. Value of machinery on farms:		
– current dollars (mil.)	9 034	18 474
– 1981 dollars (mil.)	15 286	17 445
3. Farm machinery replacement index (1981 = 100)*	59.1	105.9
4. Employment on farms ('000)	472	462
5. Value of machinery, 1981 dollars as in (2) per employed worker as in (4)	32 400	37 800
6. Canadian farm machinery industry:		
– gross domestic product – current dollars (mil.)	302	385
– 1981 dollars (mil.)	532	343
– shipments, current dollars (mil.)	853	1 142
– imports, current dollars (mil.)	1 318	1 688
– exports, current dollars (mil.)	540	651
– employment (number)	12 934	9 086
– establishments (number)	148	197

\*Index of prices of new machinery

## Fertilizers and pesticides

Fertilizer consumption on Canadian farms continues to climb. Use of the three primary nutrients — nitrogen, phosphate and potash — rose from 1.3 million tonnes in 1976 to 2 million tonnes in 1983, an increase of 53% in 7 years (Table 10).

During this period, prices rose by 55%, significantly less than the 79% for all farm inputs.

Canada is a large producer and exporter of fertilizers. We are the world's leading exporter of potash and second, after the Soviet Union, in production. However, we use relatively small amounts of this nutrient; domestic consumption accounts for only about 5% of the output from Canada's eleven mines.

Expenditures on pesticides (herbicides, insecticides, and fungicides) by Canadian farmers almost tripled from \$187 million in 1976 to \$544 million in 1983 (Table 11). After adjusting for inflation, the increase was 63%, indicating a substantial rise in their use (principally of herbicides).

Pesticides, however, still represent only a small proportion of farm expenses, about 3.5% in 1983. Herbicides account for about three-quarters of pesticide sales to farmers.

The value of pesticide imports in relation to pesticide expenditures by farmers has fallen from 53% in 1976 to 42% in 1983.

**Table 10 Principal Statistics for the Fertilizer Industry, Canada, 1976 and 1983**

Item		Year ending June 30	
		1976	1983
Manufacturing production			
– N	('000 t)	805	2182
– P <sub>2</sub> O <sub>5</sub>	('000 t)	786	561
– K <sub>2</sub> O	('000 t)	4832	5378
Total imports			
(excluding phosphate rock)	('000 t)	447	682
Total exports	('000 t)	8384	9701
Total domestic consumption	('000 t of nutrient)	1307	1996
Fertilizer price index	(1981 = 100)	59.6	92.2
Total farm input price index	(1981 = 100)	57.9	103.6

**Table 11 Expenditures on Pesticides by Farmers, Canada, 1976 and 1983**

Measure	1976	1983
Current dollars (mil.)	187	544
Pesticide price index (1981 = 100)	63.3	112.7
1981 dollars (million)	295	482

# Energy

In total, the agri-food system accounts for approximately 11% of total energy purchased in Canada. This is subdivided into primary production (farm fuel use) — 3.1%, processing and packaging — 2.4%, transportation and retailing — 2% and consumer storage and preparation — 3.5%.

The cost in 1981 for direct energy consumed by the farm and greenhouse sectors was \$1 217 million and \$28 million, respectively. In comparison, the cost in food processing was \$422 million in 1980.

As noted in Table 12, the largest expenditures on direct energy use by farmers for business are for diesel fuel, gasoline and electricity. Prairie farms use approximately two-thirds of the farm sector's diesel and gasoline.

Reduction in the aggregate utilization of direct energy by farmers can occur through advances in equipment technology, better management of fuels used in mobile equipment and improved management of heating, ventilation, lighting and stationary motors in greenhouse, livestock and poultry operations.

**Table 12   Farm Energy Expenditures by Type of Fuel, 1981**

Type of fuel	Expenditures (\$ mil.)
Gasoline	448.2
Diesel fuel	464.6
Liquified petroleum gas	45.3
Natural gas	34.9
Fuel oil	46.8
Electricity	177.4
TOTAL	1217.3

## Government expenditures

In the 1982-83 fiscal year, government expenditures for the agri-food system were \$3.7 billion. The federal part, comprising expenditures by Agriculture Canada and other federal departments and agencies, was \$2.3 billion. The provincial part, \$1.4 billion, is the total of agri-food expenditures by the 10 provincial governments.

These expenditures are made for different purposes and at various levels of the agri-food system. Some, like crop insurance and research on crops and livestock, are for the benefit of the farm sector, though the agri-food system and the economy as a whole also benefit. Expenditures on the health of animals and inspection and grading of farm commodities at various stages along the food chain safeguard the quality of food to consumers. Those used to establish and enforce standards for the manufacture and safe use of farm chemicals protect humans, animals and plants. At still other levels, expenditures may be made to promote agricultural marketing and trade and to develop agriculture in regions of slower growth.

**Table 13 Government Expenditures in the Agri-food System, Canada, 1982-83**

	(\$ mil.)
Federal government	2 283
Provincial governments	1 436
TOTAL	3 719

# COMMODITY PRODUCTION AND MARKETING SYSTEMS

## Farm cash receipts

Table 14 illustrates the relative importance of farm commodities and commodity groups in Canada's agri-food system.

In 1983, sales of crops comprised 49% and livestock and livestock products 50% of total cash receipts. Grains and oilseeds were the most important components of crop sales. Beef cattle, dairy products and hogs accounted for the majority of livestock sales.

Data by sales for the early 80s indicate that crop sales relative to total sales are being maintained at the higher levels attained in the mid-70s. At that time, in response to strong demand and rising product prices, sales of crops (particularly grains) rose rapidly. In 1976 crop sales formed 46% of total sales, appreciably higher than the approximate 40% of total sales prevailing before the mid-70s.

**Table 14 Farm Cash Receipts, Canada, by Major Commodities and Commodity Groups, 1983**

Item	Receipts (\$ mil.)	Percent of total receipts
Crops	9 114	48.6
– wheat	4 240	22.6
– coarse grains (oats, barley, rye, corn)	1 633	8.7
– oilseeds (flaxseed, canola, soybeans)	1 127	6.0
– fruit, vegetables, nursery products	1 007	5.4
– other crops	1 107	5.9
Livestock and products	9 355	50.0
– cattle and calves	3 430	18.3
– dairy products and subsidies	2 758	14.7
– hogs	1 712	9.1
– poultry and eggs	1 254	6.7
– other livestock	201	1.1
Other cash receipts	257	1.4
TOTAL	18 726	100.0



## Wheat

Wheat is Canada's dominant field crop. About 97% of the 12-14 million hectares planted annually are in the Prairie Provinces. In 1983, farmers in these provinces received \$4 185 million from wheat sales, more than 41% of their total farm cash receipts.

The domestic market for wheat is small. Export markets are relied upon to take about 82% of production.

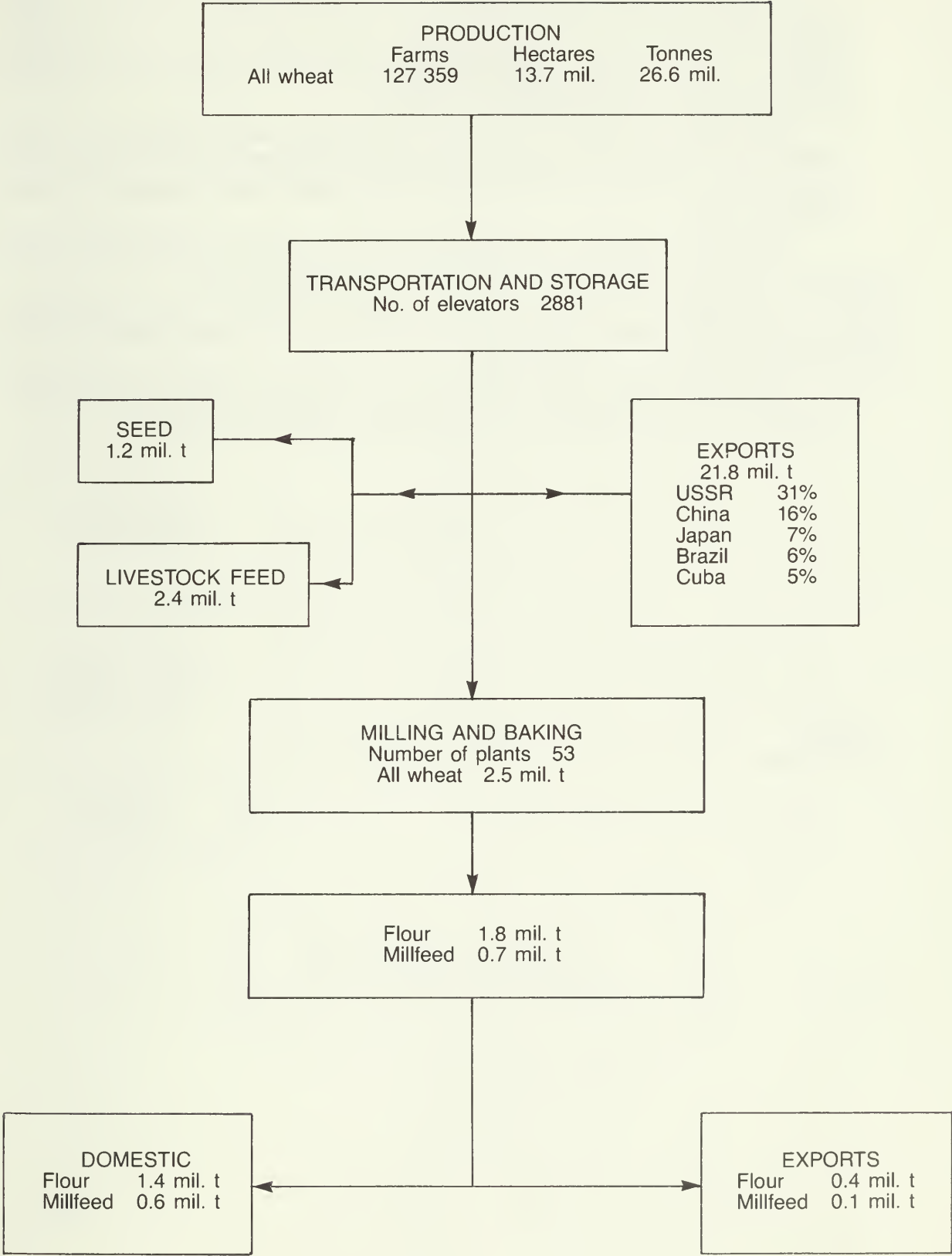
Wheat exports are an important source of foreign currencies. They comprised 50% of the value of all Canadian agricultural exports in 1983 and about 5% of the value of all merchandise exports.

With the exception of wheat used for domestic human consumption, for which the price is set under a two-price wheat arrangement, the price the farmer receives for his wheat is basically that established in international markets.

The Canadian Wheat Board, with minor exceptions, is the sole marketing agency for wheat grown in Western Canada and entering interprovincial and export trade.

Domestically, wheat is used mainly by the flour milling industry, which takes about 2 million tonnes a year, and by the animal feeding industry which uses about 2.4 million. The breakfast food and cereal industries use relatively small quantities.

The wheat system, 1983-84



## Coarse grains

Canadian coarse grain production uses about 8 million hectares of land, mainly on the prairies and in Ontario. The Prairie Provinces produced approximately 75% of both the seeded area and the farm value of these grains. Coarse grains are used primarily as feed grains for livestock and poultry. Small amounts are used for food and alcoholic beverages.

The chief coarse grains in terms of production value are barley, oats, corn, mixed grains and rye. Mixed grains are mainly barley and oats. The area sown to corn and its production have been increasing significantly in Ontario, the main producing area.

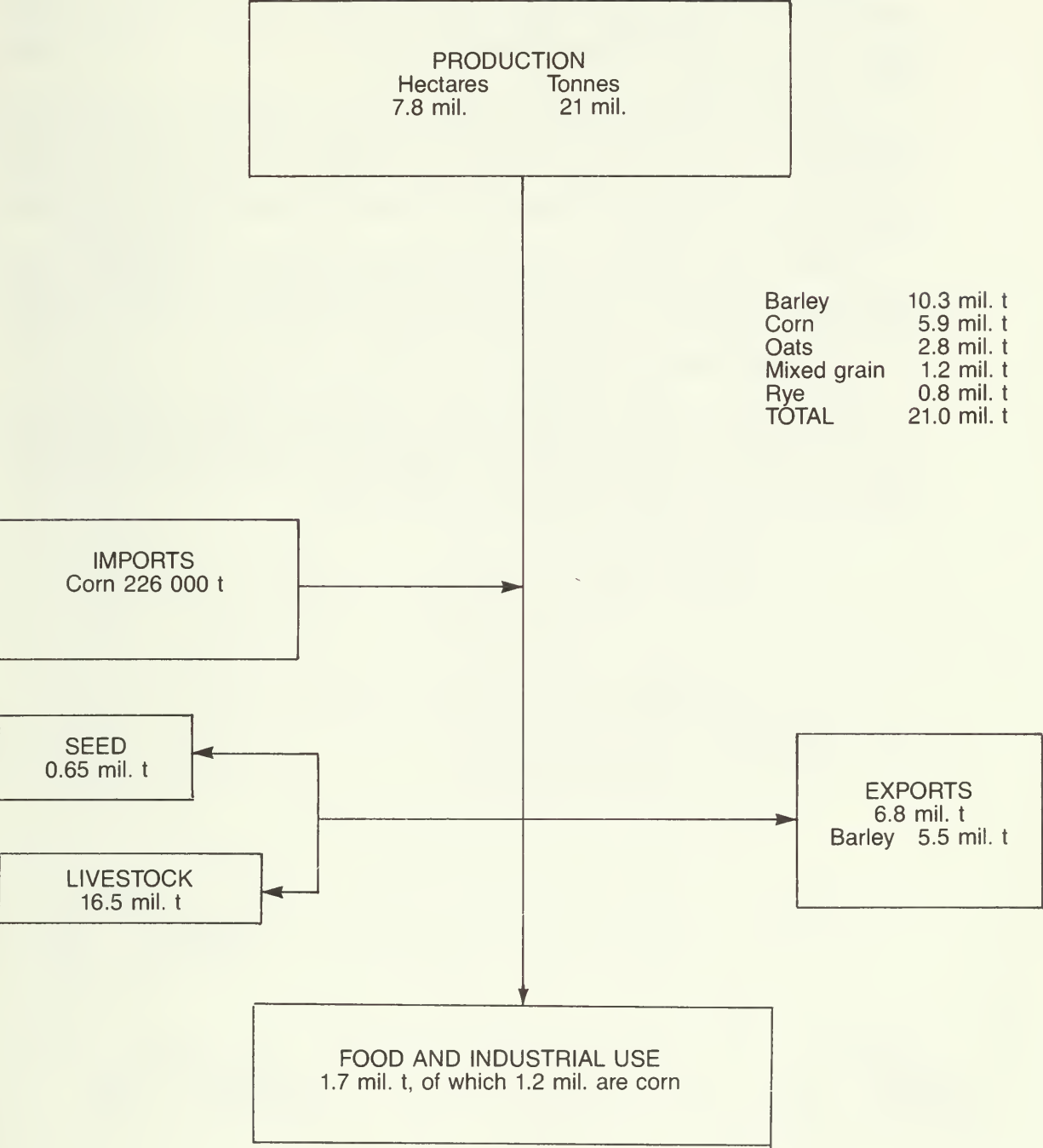
The Atlantic Provinces, Quebec and British Columbia are deficit coarse grain areas and the Prairie Provinces and Ontario are surplus areas.

Recently, there has been an upward trend in the demand for coarse grains from the four secondary industries of brewing, distilling, feed manufacturing, and flour and breakfast cereal manufacturing.

Barley is Canada's major coarse cereal grain export. Exports during 1983-84 accounted for approximately 38% of the total world barley exports.



The coarse grain system, 1983-84



## Oilseeds

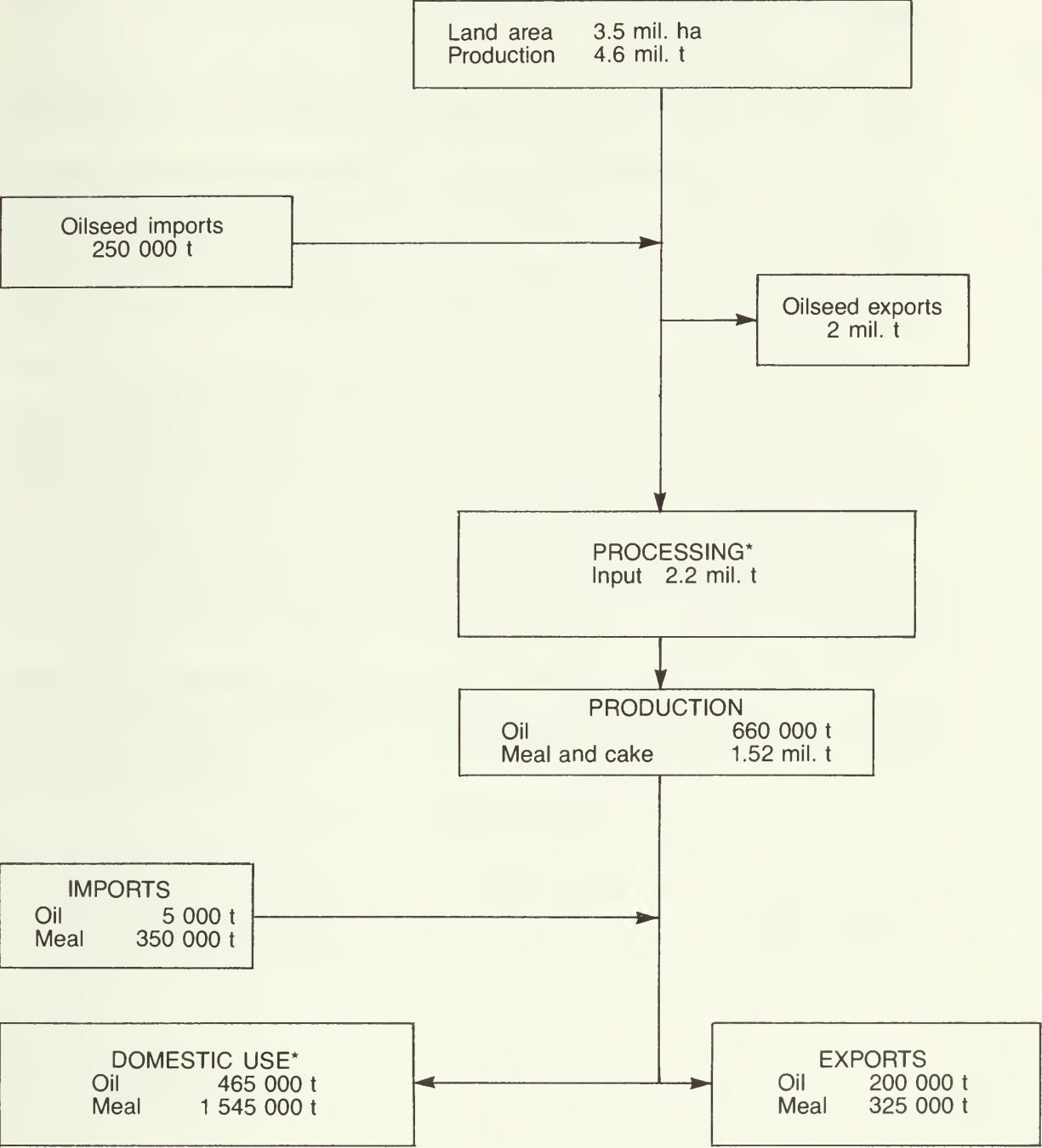
Oilseed production uses about 3.5 million hectares, of which close to 90% is in the Prairies Provinces. The Canadian rapeseed area is about 2.5 million hectares. East of the lakehead, southern Ontario soybeans are virtually the only oilseed grown commercially.

Canadian flaxseed accounts for about 28% and rapeseed for about 20% of world production. Rapeseed, sunflower and flaxseed production satisfy domestic demand for seed for crushing. Soybean production for domestic crushing is approaching self-sufficiency. Oilseeds are traded on the open market with prices determined internationally.

Canada's major exports of oilseeds are canola, rapeseed and flaxseed, while some soybean and soybean meal are imported. Overall, close to 50% of Canadian oilseeds are exported. In 1983-84, this contributed approximately 7% to the value of Canada's agricultural export trade.

Domestically crushed oilseeds have eliminated Canada's dependence on imported oil, while oilseed meal production meets about 80% of the high protein meal needs for livestock feed. Research to reduce crop losses from insects, weeds, disease and climatic conditions has increased yields.

The oilseed system, 1983-84



\* Does not include flaxseed

## Beef

The production, processing, and merchandising of beef is one of Canada's most important agricultural industries. In 1983 there were about 100 000 beef cattle producers with \$3.6 billion in farm sales.

Canadians each eat about 40 kg of beef a year. It is the meat we eat most, and makes a major contribution to our nutrition as an excellent source of high quality protein and as a source of minerals and vitamins.

Beef cattle are produced from coast to coast but about 80% of the herds are west of Ontario. Most of the "dairy" beef comes from Ontario and Quebec. Transportation plays a major role as most production areas are far from consumption centers. Nearly half a million feeder cattle are moved annually from the west to Ontario for finishing, and large numbers of carcasses are shipped from western abattoirs to eastern markets, chiefly Montreal.

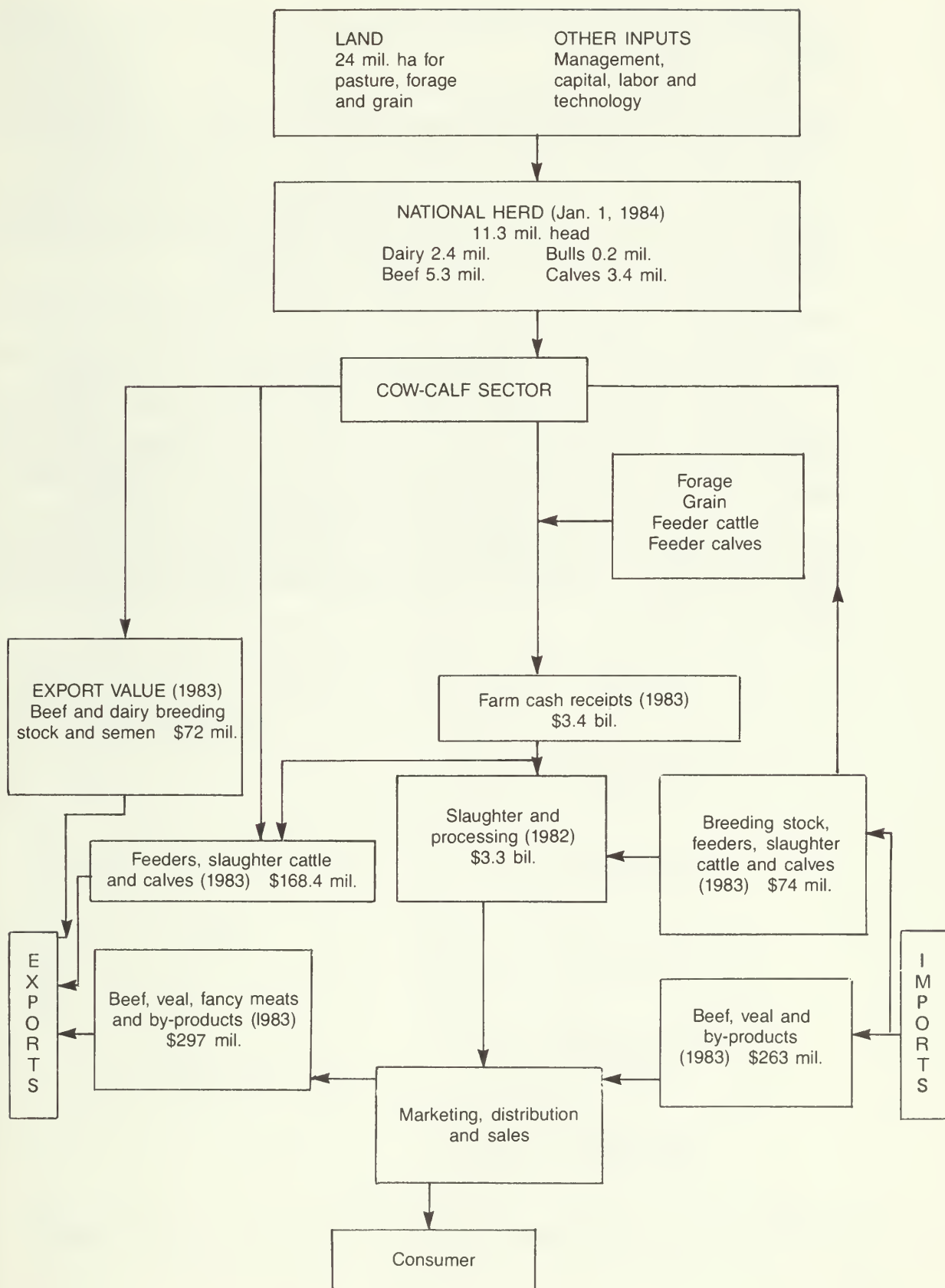
Beef slaughter, processing and marketing is a major segment of the food industry. The meat packing industry employs about 35 000 workers.

While beef production is primarily domestically oriented, there is a substantial international trade. In 1983, exports amounted to \$537 million and imports to \$337 million. Canada is normally a small net importer of beef (2-3% of total consumption). Canadian exports of breeding stock and semen are increasing.

Canadian technology in the production, processing and marketing of beef is advanced but lags somewhat behind that of the United States. More research and development is needed to enable the industry to compete more effectively on the North American market.

The domestic marketing of beef is an open system without marketing boards. Canadian beef competes with that from the United States and prices are determined chiefly by the larger U.S. market.

## The beef system, 1982-83-84



## Dairy

Dairying is a major part of Canadian agriculture. In 1983 there were a little less than 50 000 producers with \$3.2 billion in farm cash receipts, which is 20% of Canada's total farm income.

Dairy production is divided into two major sectors — fluid and manufacturing milk. The former is characterized by high production in larger herds, the latter by generally smaller herds and more seasonal production (primarily on grass).

Total milk output has remained at about the same level since 1955. Decreases in overall per capita consumption have been offset by population increases. Changes in consumption patterns include less use of butter and homogenized milk and greater use of cheese, yogurt and partly skimmed milk.

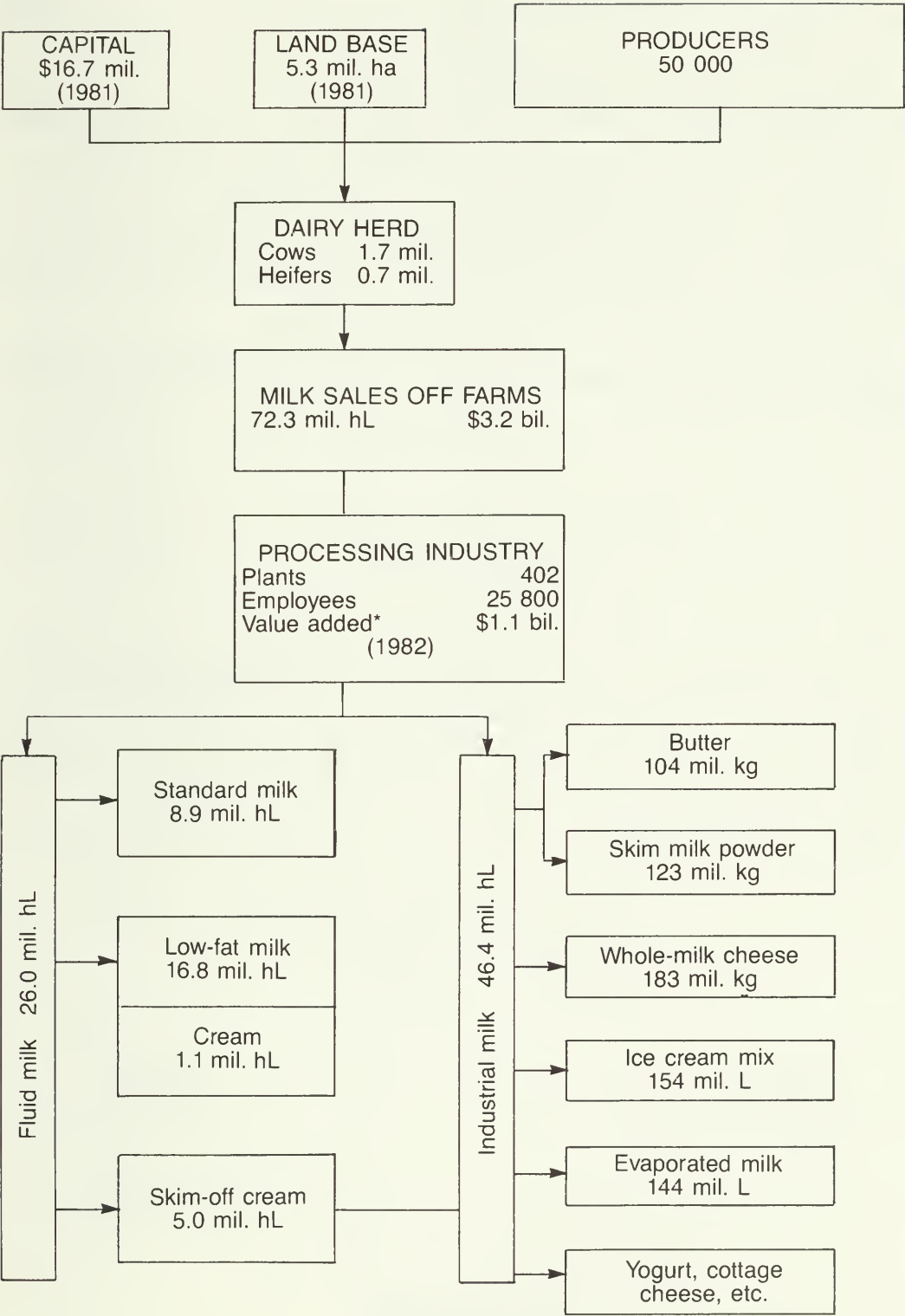
The dairy herd is a major source of meat. Most of Canada's veal and a large proportion of its manufacturing grade beef come from dairy herds.

Marketing of milk in Canada is under a supply-management system. This helps stabilize output, prices and farm income by setting production quotas.

Provincial marketing boards operate the fluid milk programs, while the Canadian Dairy Commission oversees the industrial milk program. Prices for manufacturing milk are also influenced by the federal government through support prices on butter and skim milk powder and direct payments to producers.

Dairy processing ranks second only to meat processing among the food processing industries. In 1982 there were about 402 processing plants employing about 25 800 people. Shipments of dairy products from processing plants were valued at \$5.5 billion.

# The dairy system, 1983



\* The value of production minus the cost of purchased materials and supplies (including fuel and electricity)



## Pork

Pork is an important Canadian agricultural commodity and food product. Hogs provided over 50 000 producers with \$1.7 billion in cash receipts in 1983. Domestic consumption averaged 28.6 kg per capita the same year.

The 13.6 million hogs marketed in 1983 were produced from coast to coast with production centers in Quebec, Ontario and Alberta. In recent years, production has increased in Eastern Canada and decreased in the Prairie Provinces.

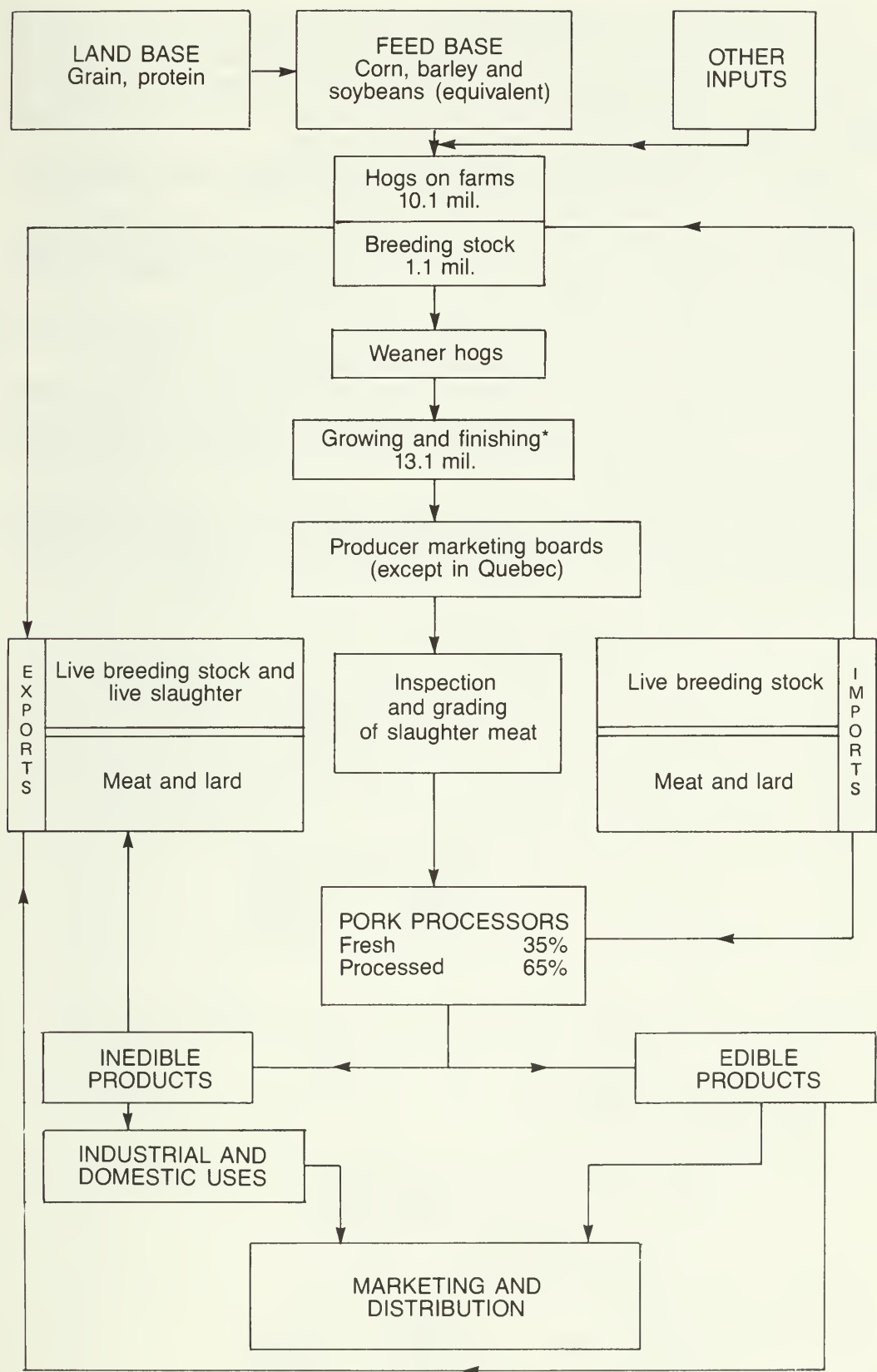
Production in the last decade has moved to a higher plateau with corresponding increases in domestic consumption and export sales to foreign markets.

Canadian hogs are marketed through the producer marketing boards that have been established in all provinces except Quebec. Canadian pork prices essentially follow those established in the much larger U.S. market.

The outlook for production growth appears to be dependent on Canadian population increases, development of export markets and favorable ratios between hog prices and feed costs.



# The pork system, 1983



\* Excluding live exports

## **Poultry and eggs**

In 1983 the poultry meat and egg industry provided about 7% of all farm cash income, or approximately \$998 million. Retail value was estimated at \$2.1 billion.

Poultry products are high quality, nutritious foods. Egg protein has the highest biological value of any natural protein and eggs are rich sources of vitamins and minerals. Poultry meat is low in fat and high in protein.

Poultry are very efficient converters of cereals to meat, often achieving feed conversion ratios of 2 kg of feed to 1 kg of meat.

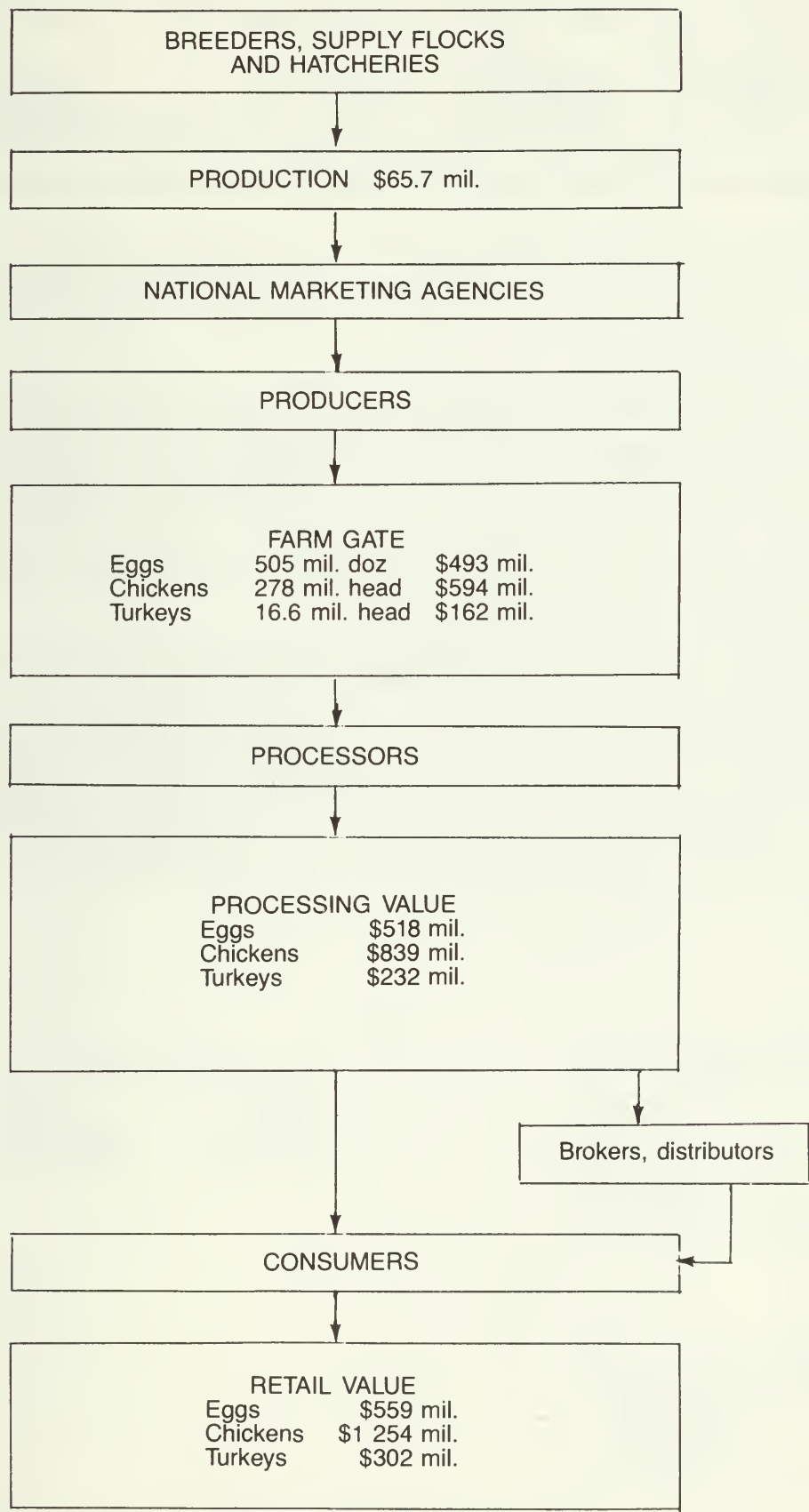
Poultry slaughter and processing is an important secondary industry and gave a value added of about \$316 million in 1983. The retail and distribution industries provided a further \$493 million.

Large-scale poultry production and processing is the most highly mechanized and technologically advanced system in the animal production field.

Provincially controlled marketing boards establish minimum producer prices for chicken and turkey. Producer prices for eggs are determined by a national cost-of-production formula. Production of the three commodities is controlled by national marketing agencies.

Since 1950, poultry meat consumption has doubled to 22.9 kg per capita. Egg consumption has diminished from 20 to 18.5 dozen per capita in the last 30 years, but now appears stable.

The poultry and egg system, 1983



## Horticulture

In 1981 nearly 318 000 hectares were devoted to horticultural production. About 40 000 growers and over 62 000 hired workers were employed in the operation.

Ontario is the most important horticultural production area, comprising 36% of the Canadian total. Quebec accounts for 20% and British Columbia for 9%, followed by the Maritimes with 23% and the prairies with 11%.

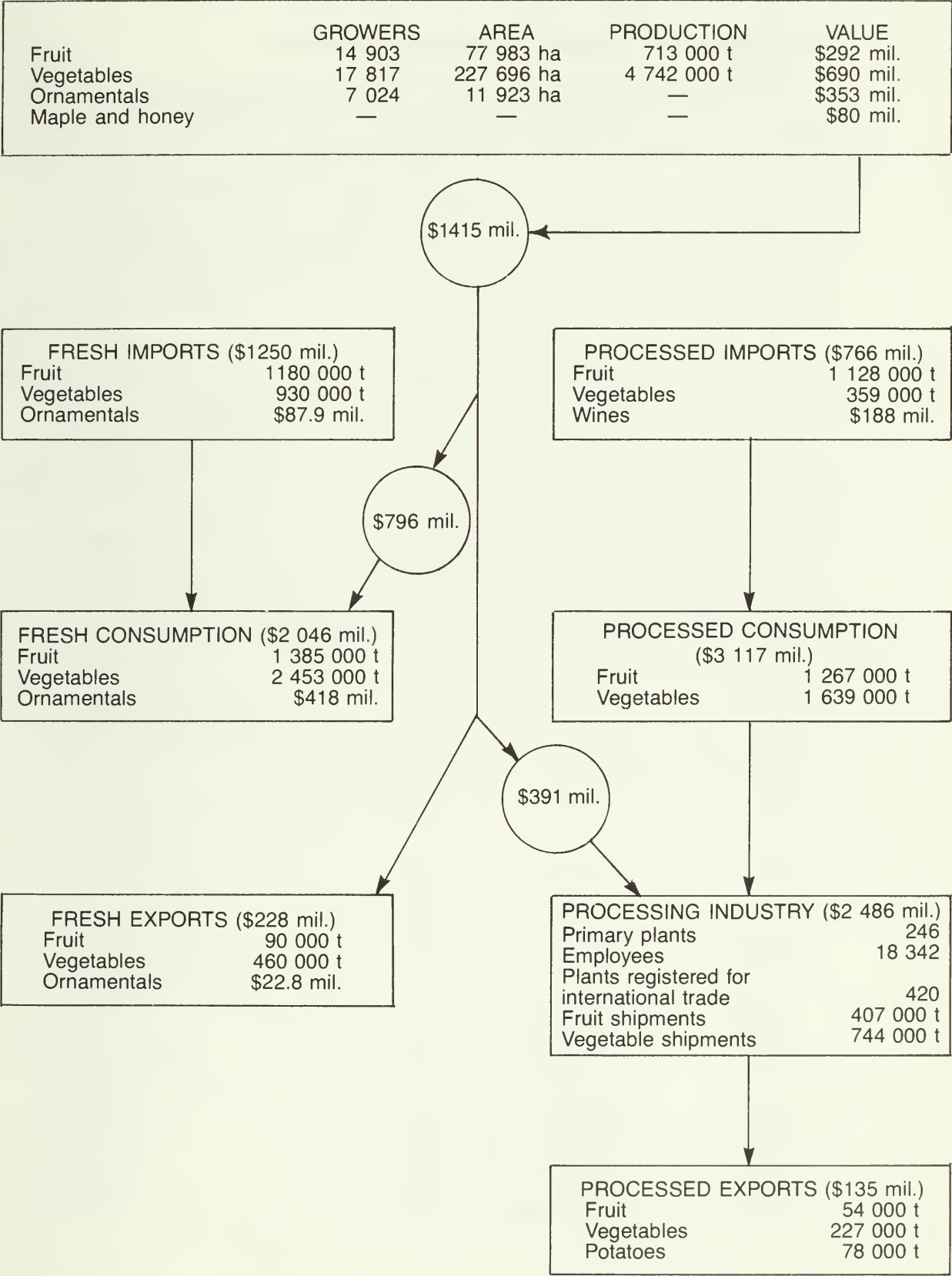
Apples and potatoes are the two most important horticultural crops grown in Canada.

Other field vegetables include processing crops (tomatoes, corn, peas, beans, etc.) grown mainly on mineral soils, and fresh market crops (carrots, lettuce, celery and cole crops) grown mostly on organic soils, primarily in British Columbia, Ontario and Quebec.

Canada's horticultural production was valued at \$1 415 million in 1982. In addition, \$2 016 million of horticultural products were imported, consisting of \$1 250 million of fresh imports and \$766 million of processed imports, the latter including wines valued at \$190 million. Exports totaled \$228 million for fresh and \$135 million for processed products. Of the \$1 415 million in cash receipts, vegetables comprised \$447 million, fruit \$292 million, potatoes \$243 million, flowers \$218 million, nursery products \$100 million, turf \$35 million and honey and maple products \$80 million.

More than one-quarter of the fresh fruit and vegetable production was processed to some degree before being sold to the consumer, with a value-added figure of about \$820 million. Some 213 major processing plants and 33 wineries employed 18 342 workers. Of the \$2 486 million worth of products processed in 1982, Ontario's share was about 54%, the Maritimes' and the Prairie Provinces' (together) about 20%, British Columbia's about 11% and Quebec's about 15%. At the wholesale level, the value of fresh and processed horticultural products produced in Canada totaled \$3 510 million (excluding fresh products sold to processors).

The horticulture system, 1981-82



\*Potatoes are included in "vegetables" except where listed separately.

## **FOOD PROCESSING, DISTRIBUTION, RETAILING AND FOOD SERVICE SECTORS**

### **The food and beverage processing industry**

The food and beverage processing industry is Canada's largest manufacturing industry. In 1982, 4372 plants had shipments of \$38 billion which was 17.9 % of the total from manufacturing. The industry employed 227 000 people, 13.3% of manufacturing employment. Purchases of materials and supplies, most of which were of agricultural origin, totaled \$22.2 billion.

Within the sector there are a number of separate industries (Table 15). They range in size from slaughtering and meat processing (employing 34 400 with a value added of \$1.3 billion in 1982) to wineries (employing 1300 and a value added of \$113 million).

In assessing the relative size of industries, the concept of value added is useful. This is essentially the value added by the processing activity to purchased materials and supplies and reflects the degree of processing.

The food and beverage processing industry is an important contributor to the provinces' economies. Value added by the industry in relation to all manufacturing industries is about 13% in Ontario, 14% in Quebec and 16% in British Columbia, 21% in the Prairie Provinces and 30% in the Atlantic region.

The size of establishments varies widely. About 45% employ fewer than 10 workers while about 1% employ more than 500. A dozen exceed 1000.

In addition to food and beverage processing, other industries use agricultural products, such as those that manufacture tobacco and leather goods.



**Table 15 Food and Beverage Processing, Selected Statistics, Canada, 1982**

Industry	Establishments (number)	Manufacturing value added (\$ mil.)	Total employment (‘000)
Total food and beverage processing	4 372	10 215.6	226.8
Meat and poultry products	582	1 507.5	44.3
– slaughtering and meat processors	486	1 214.6	34.4
– poultry processors	96	292.9	9.9
Fish products industry	360	649.3	25.9
Fruit and vegetable processing	213	821.1	17.0
– fruit and vegetables canners and preservers	177	599.1	12.3
– frozen fruit and vegetable processors	36	222.0	4.7
Dairy products industry	402	1 124.1	25.8
Flour and breakfast cereal products industry	53	338.1	5.3
Feed industry	570	447.6	9.3
Bakery products industry	1 432	1 009.2	31.9
– biscuit manufacturers	28	224.7	6.4
– bakeries	1 404	784.5	25.5
Miscellaneous food industries	451	1 974.2	35.4
– confectionery manufacturers	110	481.4	9.1
– cane and beet sugar processors	12	158.4	2.3
– vegetable oil mills	12	46.9	1.5
– miscellaneous food processors	317	1 287.5	22.5
Beverage industries	309	2 344.5	31.9
– soft drink manufacturers	203	598.0	12.4
– distilleries	33	470.7	5.3
– breweries	40	1 162.6	12.9
– wineries	33	113.2	1.3

## The marketing and distribution system

The task of getting crops and livestock from the farm to the food processor and then to the consumer involves buying and selling, transportation, storage, financing and risk-taking. Fresh produce may go from the farm to the consumer directly or through the wholesaling and retailing system.

The methods used to establish prices include auctions, marketing boards, terminal markets, brokers, wholesalers, cooperatives and direct sales. The markets can be local, national or international; the products can be perishable, storable, fresh or processed. In each case, the marketing-distribution system can be tailored to meet specific requirements. The mechanisms used for the various commodities are shown in the section, "Commodity Production and Marketing Systems".

The overall size of the marketing-distribution system is difficult to measure. One reason is the diversity of operations involved, with many functions being performed by food processors and retailers, especially the larger ones. Some data on the wholesaling of farm and food products are shown in Table 16. These products account for about 30% of all wholesale trade.

## Food retailing

Total food sales in 1983 were \$29 billion, about 27% of total Canadian retail sales. Of this, \$26.2 billion were made by grocery and combination stores while all other food stores, particularly specialty stores (like bakeries, butcher shops, cheese stores and food departments in non-food stores) accounted for the remaining \$2.7 billion. Sales data for these stores are presented in Table 17.

In 1983, 32 609 retail food stores in Canada were classified as grocery or combination stores. These included supermarkets, convenience stores, super-stores (large food stores), combination stores (which sell food and non-food items such as small appliances), warehouse stores, box stores, and limited assortment stores. The increasing variety of store types represents the retailers' efforts to reduce costs while meeting consumer demands for low prices, quality, variety and convenience.

Each year, *Canadian Grocer* magazine estimates the number of grocery and combination stores by type of ownership. In 1983, chains (four or more stores under one name) operated 1693 supermarkets and 3167 convenience stores. Independents operating under wholesaler-sponsored programs (such as IGA) operated 8549 stores, while unaffiliated stores accounted for the remaining 19 200.



**Table 16 Farm Product and Food Wholesaling, 1981**

Product	Establishments	Value of purchases (\$ mil.)	Volume of trade (\$ mil.)
Farm products	1 343	14 452	29 837
Food	4 543	18 589	23 923

**Table 17 Canadian Food Retailing, 1983**

Store organization	Sales (\$ mil.)	Share (%)
Combination	21 027.3	72.6
– chains	13 621.8	47.0
– independents	7 405.6	25.6
Grocery, confectionery and sundry stores	5 209.7	18.0
– chains	1 497.7	5.2
– independents	3 712.0	12.8
Specialty food stores	2 048.8	7.1
– chains	179.4	0.6
– independents	1 869.4	6.5
Food sales in non-food stores	695.0	2.4
TOTAL	28 980.9	100.0

## The food service sector

The food service sector (Table 18) is made up of a commercial subsector and a non-commercial subsector.

The value of food provided by restaurants, caterers and taverns, a large proportion of the commercial subsector, has been estimated at \$10.1 billion in 1983 by Statistics Canada. No firm data are available on the non-commercial subsector (such as schools, hospitals, company cafeterias, the armed services and penitentiaries) or on food services provided commercially as a secondary activity in establishments such as hotels and motels. It is possible that these segments could add several billion dollars to the food service total. Restaurants accounted for 73% of the commercial subsector's receipts. About 22% of the receipts of licensed restaurants are from sales of alcoholic beverages.

In 1983, the commercial food service industry contained 38 229 establishments. Restaurants accounted for 64%, take-outs 19.3%, caterers 8.4% and taverns 8.4%.

The food service sector has grown very rapidly and takes in more than one-quarter of the consumer's food dollar. It is now a key part of the agri-food industry.

**Table 18 The Commercial Food Service Sector, 1983**

Kind of establishment	Number of establishments	Receipts (\$ mil.)
Restaurants		
– licensed	11 669	4 476.0
– unlicensed	12 759	2 888.6
Take-outs	7 393	1 206.9
Caterers	3 211	772.1
Taverns	3 197	743.7
TOTAL	38 229	10 087.3

# FOOD CONSUMPTION AND EXPENDITURES

In 1981, Canadians spent 18% of their personal disposable income on food, beverages and tobacco. This percentage, the third lowest in the world after the United States and the Netherlands, has decreased (with minor exceptions) at a fairly constant rate since 1961. In absolute terms, expenditures have increased as a result of rising food prices, but incomes have also increased.

Expenditure patterns and the consumption of particular food items change in response to changes in relative prices, incomes and tastes. Between 1978 and 1982, the percentage of expenditures on food at home for dairy products, fruits, vegetables and bakery and cereal products increased, whereas expenditures on meat, poultry, fish, beverages, fats, oils and other foods decreased (Table 19).

In 1982, the share of total food expenditures made away from home was 24.4%, down slightly from its 1978 level of 25.9%. These expenditures are characterized by a higher share being spent on meat and smaller shares on dairy products, fruits and vegetables, compared with food consumed at home.

These data, however, apply to average families. Families with lower incomes, senior citizens, single parents and families in which one member works only in the home spend a larger proportion of their income on food. For example, in 1982 low-income families spent about 20% of their income before taxes on food (both at home and away from home), compared with 10% for high-income families. In terms of the food dollar allocation among the various food groups, low-income families spend proportionately more on dairy products, eggs, cereal and bakery products, fats, oils, beverages and fish and less on meats, fresh fruits and vegetables.

Total food demand in Canada is likely to keep pace with population growth, perhaps 1-1.5% a year. Worldwide, however, significant increases in food demand are expected.

**Table 19    The Consumer Dollar Spent for Food Consumed at Home, Showing Percentages Spent on the Major Food Groups**

Commodity	1978	1982
Meat, poultry and fish	33.1	31.1
Fruits and vegetables	17.3	19.4*
Dairy products and eggs	16.6	18.0
Bakery and cereal products	11.2	12.7
Beverages	7.4	6.1
Fats and oils	2.6	1.9
Other foods	11.8	10.8
ALL COMMODITIES	100.0	100.0

\*Includes nuts; in earlier survey nuts were included with other foods.

## **INTERNATIONAL TRADE**

The value of agricultural exports in 1983 reached \$9.5 billion, while imports were \$5.2 billion. The dominance of wheat as our major export commodity is apparent in Table 20 where the values of major commodity groups are expressed as percentage shares of total agricultural exports and imports. Three commodity groups comprised about half of our agricultural imports in 1983. They are fruits and nuts, plantation crops (tea, coffee, cocoa and rubber) and vegetables. During the past 10 years the commodity shares of agricultural exports and imports have not changed significantly.

### **Exports**

The United States became our major market for agricultural products in 1983. In the past, the European Economic Community was Canada's most important market but in recent years sales to the U.S., Japan and the USSR have surpassed it.

### **Imports**

Canada's major import suppliers are the United States, Australia, the EEC, Brazil, New Zealand and Mexico. The United States supplies over half of our agricultural imports. Table 22 shows that 60% of the total value came from the U.S. in 1983.

### **Food trade**

Food trade is a component of agricultural trade. In this publication, it is defined as trade in agricultural commodities, fresh or processed, that are ready to eat, such as meat, fruit, nuts, vegetables, tea and refined sugar. It also includes fish products and beverages (alcoholic and non-alcoholic) that are not normally included in agricultural trade data. Food trade does not include agricultural commodities that are either inedible or not yet in an edible form, such as fur, skins, wheat, tobacco, green coffee and raw sugar. Food exports in 1983 were valued at \$3.9 billion and food imports at \$4 billion.

**Table 20 Canada's Agricultural Trade in 1983**

Commodity group	Exports (%)	Imports (%)
Grains <sup>1</sup>	59	2
Grain products	2	3
Animal feeds	3	1
Oilseeds	7	3
Oilseed products	1	6
Live animals	3	2
Meats	7	6
Other animal products	4	6
Dairy products	3	2
Poultry and eggs	*	1
Fruit and nuts	1	24
Vegetables	2	12
Potatoes	1	1
Seeds for sowing	*	1
Maple products	*	*
Sugar	*	4
Tobacco	1	1
Vegetable fibers	*	2
Plantation crops	*	13
Other agricultural products	3	10
<b>TOTAL</b>	<b>100</b>	<b>100</b>

<sup>1</sup> comprises 82% wheat, 14% barley and 4% other grains

\* = less than 1%

**Table 21 Canada's Major Export Markets for Agricultural Products**

Period	Total	China	EEC	Japan	U.S.	USSR	Other
1973-82 (\$ mil.)	5563	405	1044	901	861	720	1632
(% of total)	(100)	(7)	(19)	(16)	(15)	(13)	(30)
1983 (\$ mil.)	9505	941	1164	1296	1736	1646	2722
(% of total)	(100)	(10)	(12)	(14)	(18)	(17)	(29)



**Table 22 Canada's Major Sources of Agricultural Imports**

Period	Total	Aus- tralia	Brazil	EEC	Mexico	New Zealand	U.S.	Other
1973-82								
(\$ mil.)	3907	239	109	281	70	93	2249	866
(% of total)	(100)	(6)	(3)	(7)	(2)	(2)	(58)	(22)
1983								
(\$ mil.)	5185	180	198	427	76	141	3118	1045
(% of total)	(100)	(4)	(4)	(8)	(1)	(3)	(60)	(20)

## DATA SOURCES

Sources listed are from Statistics Canada unless entry is followed by an asterisk:

Tables 1 to 5	— 1981 Census of Agriculture
Table 4	— 1981 Census of Population
Tables 6, 7	— Farm Net Income. Catalog No. 21-202 (annual)
Table 8	— Farm Credit Corporation, 1984 Farm Credit Survey*
Table 9	— Farm Implement and Equipment Sales. Catalog No. 63-203 (annual) (before 1978)
	— Farm Input Price Index. Catalog No. 62-004 (quarterly)
	— Farm Net Income. Catalog No. 21-202 (annual) (value of machinery on farms)
	— The Labour Force. Catalog No. 71-001 (monthly)
	— Inventories, Shipments and Orders in Manufacturing Industries. Catalog No. 31-001 (monthly)
	— Exports: Merchandise Trade. Catalog No. 65-202 (annual)
	— Imports: Merchandise Trade. Catalog No. 65-203 (annual)
	— Agricultural Implement Industry. Catalog No. 42-202 (annual) (employment and number of establishments)
Table 10	— Farm Input Price Index. Catalog No. 62-004 (monthly)
	— Suen, E., <i>Fertilizer Statistical Bulletin</i> . Agriculture Canada, Publication No. 82/2, March, 1982*
	— Canadian Fertilizer Institute, Canadian Fertilizer Information System*
Table 11	— Farm Input Price Index. Catalog No. 62-004 (monthly)
Table 12	— Farm Energy Use, 1981. Catalog No. 21-509 (occasional)



- Table 13 — Provincial Government Finance — Revenue and Expenditure. Catalog No. 68-207 (annual)  
 — Huot, M., Federal Agri-Food Expenditures, 1970-71 to 1982-83. Agriculture Canada working paper, 1984\*
- Table 14 — Farm Net Income. Catalog No. 21-202 (annual)
- Table 15 — Manufacturing Industries of Canada: National and Provincial Areas. Catalog No. 31-203 (annual)
- Table 16 — Wholesale Trade Statistics, Wholesale Merchants, Agents and Brokers. Catalog No. 63-226 (annual)
- Table 17 — Department Store Sales and Stocks. Catalog No. 63-002 (monthly)  
 — Retail Trade. Catalog No. 63-005 (monthly)
- Table 18 — Restaurant, Caterer and Tavern Statistics. Catalog No. 63-011 (monthly)
- Table 19 — Urban Family Food Expenditure, 1978. Catalog No. 62-548 (occasional)  
 — Family Food Expenditure in Canada, 1982. Catalog No. 62-549 (occasional)
- Tables 20 to 22 — Exports: Merchandise Trade. Catalog No. 65-202 (annual)  
 — Imports: Merchandise Trade. Catalog No. 65-203 (annual)

